

What is claimed is:

1. A float glass chamber comprising:  
a hot section having an atmosphere in at least the lower plenum comprises  
5 less than 3 percent hydrogen based on volume; and  
a cold section, wherein the boundary line between the hot section and the  
cold section is where the temperature of the glass falls below a threshold  
temperature.
- 10 2. A float chamber according to claim 1 wherein the threshold temperature of the  
chamber is 1600°F.
- 15 3. A float chamber according to claim 1 wherein the threshold temperature of the  
float chamber is 1800°F.
4. A float chamber according to claim 1 wherein the threshold temperature of the  
float chamber is 2100°F.
- 20 5. A float chamber according to claim 1 wherein the atmosphere in at least the  
lower plenum of the cold section comprises up to 10 percent of hydrogen based on  
volume.
6. A float chamber comprising:  
a hot section having an atmosphere in at least the lower plenum comprises  
25 less than 3 percent hydrogen based on volume; and  
a cold section, wherein the boundary line between the hot section and the  
cold section is where the temperature of the glass falls below a threshold  
temperature of greater than 1600°F.
- 30 7. A float chamber according to claim 6 wherein the atmosphere in at least the  
lower plenum of the cold section comprises up to 10 percent of hydrogen based on  
volume.
- 35 8. A method for making float glass with reduced defect density comprising:
  - a. melting a glass composition to form a glass melt; and

b. pouring the glass melt in a float chamber having a hot section and an cold section, the boundary line between the hot section and the cold section is where the temperature of the glass falls below a threshold temperature, wherein the hot section has an atmosphere in at least the lower plenum comprises

5 less than 3 percent hydrogen based on volume

9. A method according to claim 8 wherein the threshold temperature of the float chamber is 1600°F.

10 10. A method according to claim 8 wherein the threshold temperature of the float chamber is 1800°F.

11. A method according to claim 8 wherein the threshold temperature of the float chamber is 2100°F.

15 12. A method according to claim 8 wherein the atmosphere in at least the lower plenum of the cold section comprises up to 10 percent of hydrogen based on volume

13. A method according to claim 8 wherein the glass melt has a water content

20 equal to or greater than 0.035 weight percent based on the total weight percent of the composition.

14. A method according to claim 8 wherein the float glass produced comprises at least one piece of glass in a laminated product.

25 15. A method according to claim 14 wherein the laminated product is a windshield.

16. A method for making float glass with reduced defect density comprising:

30 a. melting a glass composition to form a glass melt; and

b. pouring the glass melt into a float chamber having a hot section and an cold

section, the boundary line between the hot section and the cold section is where the temperature of the glass falls below a threshold temperature;

c. pumping a gas mixture comprising less than 3% hydrogen based on volume into at least the lower plenum of the hot section.

17. A method according to claim 16 wherein the pumping comprises pumping a gas mixture comprising less than 1% hydrogen based on volume into at least the lower plenum of the hot section.

18. A method according to claim 16 wherein the glass composition comprises:  
from 65 to 75 weight percent  $\text{SiO}_2$ ;  
from 10 to 20 weight percent  $\text{Na}_2\text{O}$ ;  
from 5 to 15 weight percent  $\text{CaO}$ ;  
from 0 to 5 weight percent  $\text{MgO}$ ;  
from 0 to 5 weight percent  $\text{Al}_2\text{O}_3$ ;  
from 0 to 5 weight percent  $\text{K}_2\text{O}$ ; and  
from 0 to 2 weight percent  $\text{Fe}_2\text{O}_3$ ,  
with weight percents being based on the total weight of the glass composition.

19. A method according to claim 16 wherein the melting occurs in an oxy-fuel furnace.